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MF

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/258,663	02/26/99	YARON	SANF-22100-U

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EXAMINER

WM01/0705

CARTER LEDYARD & MILBURN
1401 EYE STREET N W SUITE 300
WASHINGTON DC 20005

SEALEY, L

ART UNIT	PAPER NUMBER
2671	4

DATE MAILED: 07/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev.11/00) 1- File Copy

Office Action Summary	Application No.	Applicant(s)	
	09/258,663	YARON ET AL.	
	Examiner	Art Unit	
	Lance W. Sealey	2671	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on 2/26/99 .

2a)☐ This action is FINAL. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-56 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-7,9,10,15-37,39,40 and 45-56 is/are rejected.

7)☒ Claim(s) 8,11-14,38 and 41-44 is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Notice of Change in Art Unit

1. The Group and/or Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2671.

Allowable Subject Matter

2. Claims 8, 11-14, 38 and 41-44 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. The following is a statement of reasons for the indication of allowable subject matter: Nothing in the prior art anticipates or suggests, in a method of providing data blocks describing three-dimensional terrain to a renderer, downloading first the block for which the coordinates were provided last among blocks at a common resolution level (claims 8 and 38), downloading excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer (claims 11 and 41). Claims 12-14 depend directly or indirectly on claim 11, and claims 42-44 depend directly on claim 41.

Claim Rejections - 35 USC § 102

4. The following is a quotation of 35 U.S.C. 102(e) which forms the basis for all novelty rejections set forth in this Office action:

A person shall be entitled to a patent unless—

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent.

5. Claims 1-2, 5-7, 9, 16-17, 19-22, 31-32, 35-37, 39 and 46-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Migdal et al. ("Migdal '783", U.S. Pat. No. 5,760,783).

6. Migdal '783, in disclosing a system and method for computer modeling of 3D objects, also discloses, with respect to claim 1, a method of providing data blocks (LOD generation block **1050**, FIG.10), describing three-dimensional terrain to a renderer (raster subsystem **224**, FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels (col.9, ll.5-17), the method comprising:

- receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level (col.16, ll.1-21);
- providing the renderer with a first data block which includes data corresponding to the one or more coordinates from a local memory (col.9, ll.5-14);
- downloading from a remote server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level (col.8. l.66-col.9, l.36 and FIG.2. Local memory: texture memory **226**. Remote server: graphics display system **200**).

7. Concerning claims 2 and 32, Migdal '783 discloses providing the first data block comprises providing the data block from the highest resolution level which includes data

corresponding to the one or more coordinates (col.16, ll.1-21).

8. Regarding claims 5 and 35, Migdal '783 discloses receiving a plurality of coordinates included in a plurality of respective distinct blocks, and wherein downloading the one or more blocks comprises downloading blocks including data corresponding to at least some of the plurality of coordinates (col.8, l.66-col.9, l.36).

9. With respect to claims 6 and 36, Migdal '783 discloses downloading blocks in an order determined according to their resolution levels (col.8, l.66-col.9, l.36).

10. Concerning claims 7 and 37, Migdal '783 discloses downloading blocks of lower resolution levels before blocks of higher resolution levels (col.16, ll.1-21).

11. Regarding claims 9 and 39, Migdal '783 discloses downloading the blocks according to the order in which the coordinates were provided (col.16, ll.5-11).

12. With respect to claims 16 and 46, Migdal '783 discloses a method of displaying three dimensional images, comprising:

- establishing a communication link between a local processor and a server (col.8, l.66-col.9, l.36);
- transferring data blocks describing terrain over the communication link from the server to the local processor (col.8, l.66-col.9, l.36); and
- rendering a three-dimensional terrain image at the local processor responsive to the data blocks (display **232**, FIG.2, and col.7, ll.13-16).

13. Concerning claims 17 and 47, Migdal '783 discloses the establishment of a low-speed communication link (arrow between bus **201** and geometry engine **222**, FIG.2).

14. Regarding claims 19 and 48, Migdal '783 discloses transferring the blocks responsive to a list of coordinates generated by the processor (col.8, l.66-col.9, l.36).

15. With respect to claims 20 and 49, Migdal '783 discloses preparing the list of coordinates responsive to a viewpoint from which the image is rendered (col.16, ll.1-21 and col.8, l.66-col.9, l.36, especially col.9, ll.18-21).

16. Concerning claims 21 and 50, Migdal '783 discloses the viewpoint changing over time following a predetermined course (col.10, ll.13-20).

17. Regarding claims 22 and 51, Migdal '783 discloses receiving the predetermined course from the server (col.10, ll.13-49, especially ll.47-49).

18. Finally, concerning claim 31, Migdal '783 discloses an apparatus for providing data blocks describing three-dimensional terrain to a renderer (FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

- a local memory, which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer (texture memory **226**, FIG.2);
- a communication link, through which the memory receives the data blocks from a remote server (arrow between bus **201** and geometry engine **222**, FIG.2); and

- a processor which receives one or more specified coordinates along with indication of a respective resolution level from the renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from the local memory, and downloads over the communication link one or more additional data blocks which include data corresponding to the one or more coordinates if the first block is not from the indicated level (computer graphics display system 200, FIG.2).

19. Therefore, in view of the foregoing, the examiner concludes that the above claims have been anticipated by Migdal '783.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. Claims 3-4, 10, 33-34 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of *In re Gazda*, 104 USPQ 400 ("*Gazda*").

22. With respect to claims 3 and 33, Migdal '783 does not disclose downloading a block at a resolution level higher than the resolution level of the first block; nor does it disclose claims 4 and

34, downloading the blocks from a succession of resolution levels, from the level immediately higher than the resolution level of the first block up to the maximal existent resolution level on the server not above the indicated resolution level; nor does it disclose claim 10, downloading first the block for which the coordinates were provided last. Instead, consistent with applicants' claim 2, Migdal '783 provides the data block with the highest resolution first. But *Gazda* stands for the idea that it is obvious to reverse the order of the elements.

23. *Gazda* involved a clock wound by turning the steering wheel of a car (104 USPQ at 400). The applicant's clock featured a pawl-and-ratchet mechanism (104 USPQ at 401). The way the applicant's invention worked was that turning the steering wheel moved the ratchet wheel of the clock relative to the pawl to actuate a train of gears which wound the clock (104 USPQ at 401). The primary reference used to reject the applicant's claims featured an automobile clock that was stationary relative to the car, being mounted on the stationary structure of the steering column (instead of movable with the wheel as in the applicant's device), and was wound through a gearing connection by turning the steering wheel in one direction only (104 USPQ at 401). A secondary reference was used to reject the pawl-and-ratchet element of the applicant's claim (104 USPQ at 401).

24. The CCPA reasoned that whether the clock was mounted on the steering wheel or the steering wheel post "was only a matter of choice amounting to a mere reversal of parts", and the CCPA further agreed with the examiner who argued that the location of the ratchet means at the

input end of the winding connection instead of the output end was "merely a matter of choice and expediency" (104 USPQ at 402).

25. Applying the reasoning of *Gazda* to this application, downloading a block at a resolution level higher than the resolution level of the first block is a matter of choice amounting to a mere reversal of which block is downloaded first. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to make this change.

26. Therefore, in view of the foregoing, claims 3-4, 10, 33-34 and 40 are rendered unpatentable by Migdal '783 and *Gazda*.

27. Claims 15, 18, 45, 48 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Migdal et al. ("Migdal '702," U.S. Pat. No. 5,886,702).

28. With respect to all of these claims, Migdal '783 does not disclose downloading the blocks via the Internet. However, Migdal '702 discloses this element at col.10, ll.27-41.

29. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 to effect downloading over the Internet. Such a modification to Migdal '783 would increase flexibility by expanding the sources of images that describe the terrain of places to which pilots want to fly.

30. Accordingly, in view of the foregoing, claims 15, 18, 45, 48 and 55 are rendered unpatentable by Migdal '783 and Migdal '702.

31. Claims 23-24, 26-27 and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Viebahn et al. ("Viebahn," U.S. Pat. No. 5,798,713).

32. With respect to claims 23 and 52, Migdal '783 does not disclose a suggested course for landing in an airport. However the Viebahn process for representing flight guidance information discloses this element in FIGS.3-6.

33. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Viebahn to provide a suggested course for landing in an airport. Such a modification to Migdal '783 would make the pilot's task easier by summarizing the information relevant to the landing phase of a flight within an overall image which is of favorable ergonomic form.

34. The other claims in this rejection will now be considered: With respect to claims 24 and 53, Viebahn discloses the user of the processor changing the view direction from the viewpoint without removing the viewpoint from the predetermined course (see drawing descriptions of FIGS.3-6).

35. Concerning claim 26, Viebahn discloses transferring blocks which include altitude data of the terrain at col.4, ll.64-65.

36. Finally, regarding claim 27, Viebahn discloses transferring blocks which include objects to be overlaid on the terrain at col.4, ll.64-65 (flight altitude information).

37. Therefore, in view of the foregoing, the examiner concludes that claims 23-24, 26-27 and 52-53 have been rendered unpatentable by Migdal '783 and Viebahn.

38. Claims 25 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Reber et al. ("Reber," U.S. Pat. No. 6,111,568).

39. With respect to both of these claims, Migdal '783 does not disclose the viewpoint being controlled by a user of the processor. This element is disclosed by Reber at col.10, ll.39-41 and col.12, ll.34-36.

40. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Reber to give the user control over the viewpoint. Such a modification to Migdal '783 would enhance the pilot's safety by presenting him or her with a telepresence within the viewed environment.

41. Accordingly, in view of the foregoing, claims 25 and 54 are rendered unpatentable by Migdal '783 and Reber.

42. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Viebahn and further in view of Asenio et al. ("Asenio," U.S. Pat. No. 5,652,863).

43. Migdal '783 does not disclose rendering images using representations of at least some of the objects overlaid on the terrain according to settings made by the user of the local processor. However, the Asenio graphical method of media partitioning on a hard disk discloses this element at col.1, l.65-col.2, l.17.

44. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Asenio to give the user control over the properties of the representations of the objects overlaid on the terrain. Such a modification to Migdal '783 would enhance the user's ability to more clearly see important information.

45. Accordingly, in view of the foregoing, claims 25 and 54 are rendered unpatentable by Migdal '783 and Reber.

46. Claims 29 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. ("Lockwood," U.S. Pat. No. 4,070,705) in view of Migdal '783.

47. Lockwood, in disclosing a simulation apparatus, also discloses a method of pilot training (col.1, ll.9-23) and loading a course of a flight vehicle into a local processor (col.3, ll.39-49). However, Lockwood does not disclose the other elements of establishing a communication link between a processor and a server, transferring data blocks over the communication link to the server from the local processor, and rendering a 3D terrain image at the local processor. These are disclosed by Migdal '783 in a manner similar to the way these elements are disclosed in claim 16 (see paragraph 12 above).

48. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Lockwood with Migdal '783. Such a modification to Lockwood would enhance the pilot's sense of realism by delivering a texture image of the terrain quickly and efficiently.

49. Accordingly, in view of the foregoing, claims 29 and 56 are rendered unpatentable by Lockwood and Migdal '783.

50. Finally, claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood in view of Migdal '783 and further in view of Viebahn according to the same rationale used to reject claims 23 and 52. Therefore, in view of the foregoing, the examiner concludes that claim 30 has been rendered unpatentable by Lockwood, Migdal '783 and Viebahn.

Conclusion

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lance Sealey whose telephone number is (703) 305-0026. The examiner can normally be reached Monday-Friday from 7:00 am to 3:30 pm EDT.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached on (703) 305-9798. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

53. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700 or the Customer Service Office at (703) 306-0377.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Application/Control No. 09/258,663	Applicant(s)/Patent Under Reexamination YARON ET AL.	
	Examiner Lance W. Sealey	Art Unit 2671	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification	
	A	US-5,760,783-A	06-1998	Migdal et al.	345	430
	B	US-5,886,702-A	03-1999	Migdal et al.	345	423
	C	US-6,111,588-A	08-2000	Reber et al.	345	327
	D	US-5,798,713-A	08-1998	Viebahn et al.	340	974
	E	US-5,652,863-A	07-1997	Asenio et al.	395	497.04
	F	US-4,070,705-A	01-1978	Lockwood et al.	364	200
	G	US- -				
	H	US- -				
	I	US- -				
	J	US- -				
	K	US- -				
	L	US- -				
	M	US- -				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification	
	N	- -					
	O	- -					
	P	- -					
	Q	- -					
	R	- -					
	S	- -					
	T	- -					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

10B
10/9/01
Gordon

ATTORNEY DOCKET NO. SKY02 005 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Yaron et al.

Serial No. 09/258,663 Art Unit: 2671

Filed: February 26, 1999 Examiner: Sealey, L.

TITLE: REMOTE LANDSCAPE DISPLAY AND PILOT TRAINING

Amendment

The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Responsive to the Official Action dated July 5, 2001 please amend the subject application as follows.

In the Claims:

Please cancel claims 16-30 and 46-56, without prejudice.

Please add new Claims 57-58.

Sub CH

B1

57. (New) The method of Claim 1, wherein the coordinates relate to the coordinates of a predetermined course of a flight vehicle.

58. (New) The apparatus of Claim 31, wherein said data blocks relate to a course of a flight vehicle.

REMARKS

Claims 1-15 and 31-45 remain in the application. Applicant notes the allowable subject matter in Claims 8, 11-14, 38 and 41-44.

35 U.S.C. § 102(e) Rejections:

Claims 1-2, 5-7, 9, 16-17, 19-22, 31-32, 35-37, 39, and 46-51 stand rejected as anticipated by Migdal et al. ("Migdal") Claims16-17, 19-22 and 46-51 have been cancelled without prejudice and reconsideration of the rejection of claims 1-2, 5-7, 9, 31-32, 35-37 and 39 is solicited.

As recited in Independent Claims 1 and 31, the required block is downloaded from the remote server if the block at a required resolution does not reside on the local memory. Examiner asserts that this is disclosed in Migdal col. 8, line 66 through col. 9, line 36, but that passage discloses only the existence of a hierarchy of LOD maps and the memory saved by storing clip maps in texture memory. The Examiner also references Fig. 2 which discloses a processor, but fails to disclose downloading data blocks from a remote server as required by Claims 1 and 31.

Withdrawal of the rejection of Independent Claims 1 and 31 is solicited. Claims ultimately depending therefrom should be allowed without recourse to the additional patentable limitations respectively recited.

35 U.S.C. § 103(a) Rejections:

Claims 3-4, 10, 33-34 and 40 are rejected under 35 U.S.C. § 103(a) as obvious over Migdal in view of *In re Gazda*, 104 U.S.P.Q. 400 (CCPA 1955).

The Examiner relies on *In re Gazda* for the proposition that reversing the order of elements is obvious, but the holding thereof is far more restrictive, dealing with a specific structure. Moreover, the Examiner is overlooking the major deficiency of Migdal, *i.e.* there is no disclosure regarding a downloading order based on resolution levels. *A fortiori,* Migdal fails to teach downloading additional blocks from a remote server if blocks at the required resolution level are not present on the local memory. Withdrawal of the rejection of Claims 3-4, 10, 33-34 and 40 is therefore required.

Claims 15, 18, 45, 48 and 55 stand rejected as obvious over Migdal in view of Migdal et al. ('702). Claims 18, 48 and 55 have been cancelled without prejudice. Reconsideration of Claims 15 and 45 is solicited.

Claims 15 and 45 depend from Independent Claims 1 and 31, respectively and are allowable therewith. As discussed above, Migdal does not disclose the downloading which the Independent Claims 1 and 31 recite and Migdal ('702) fails to obviate this basic deficiency.

Claims 23-29, 52-54 and 56 are rejected under 35 U.S.C. § 103(a). These claims have been cancelled without prejudice.

Allowance of all claims remaining in the application is respectfully solicited.

Respectfully submitted,

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Dated: October 4, 2001

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/258,663	02/26/1999	RONNIE YARON	SANF-22100-U	4205

7590 11/27/2001

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1401 Eye Street N W Suite 300
Washington, DC 20005

EXAMINER
SEALEY, LANCE W

ART UNIT	PAPER NUMBER
2671	

DATE MAILED: 11/27/2001

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PTO-90C (Rev. 07-01)

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	Lance W. Sealey	2671	

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- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 10/5/01 .

2a)☒ This action is FINAL. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15,31-45,57 and 58 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-7,9,10,15,31-37,39,40,45,57 and 58 is/are rejected.

7)☒ Claim(s) 8,11-14,38 and 41-44 is/are objected to.

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9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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20)☐ Other:

DETAILED ACTION

Allowable Subject Matter

1. Claims 8, 11-14, 38 and 41-44 are still objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of 35 U.S.C. 102(e) which forms the basis for all novelty rejections set forth in this Office action:

> A person shall be entitled to a patent unless—
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent.

3. Claims 1-2, 5-7, 9, 31-32, 35-37 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Migdal et al. ("Migdal '783", U.S. Pat. No. 5,760,783).

4. Migdal '783, in disclosing a system and method for computer modeling of 3D objects, also discloses, with respect to claim 1, a method of providing data blocks (LOD generation block 1050, FIG.10), describing three-dimensional terrain to a renderer (raster subsystem 224, FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels (col.9, ll.5-17), the method comprising:

- receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level (col.16, ll.1-21);

- providing the renderer with a first data block which includes data corresponding to the one or more coordinates from a local memory (col.9, ll.5-14);
- downloading from a remote server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level (col.8. l.66-col.9, l.36 and FIG.2. Local memory: texture memory **226**. Remote server: graphics display system **200**).

5. Concerning claims 2 and 32, Migdal '783 discloses providing the first data block comprises providing the data block from the highest resolution level which includes data corresponding to the one or more coordinates (col.16, ll.1-21).

6. Regarding claims 5 and 35, Migdal '783 discloses receiving a plurality of coordinates included in a plurality of respective distinct blocks, and wherein downloading the one or more blocks comprises downloading blocks including data corresponding to at least some of the plurality of coordinates (col.8, l.66-col.9, l.36).

7. With respect to claims 6 and 36, Migdal '783 discloses downloading blocks in an order determined according to their resolution levels (col.8, l.66-col.9, l.36).

8. Concerning claims 7 and 37, Migdal '783 discloses downloading blocks of lower resolution levels before blocks of higher resolution levels (col.16, ll.1-21).

9. Regarding claims 9 and 39, Migdal '783 discloses downloading the blocks according to the order in which the coordinates were provided (col.16, ll.5-11).

10. Finally, concerning claim 31, Migdal '783 discloses an apparatus for providing data blocks describing three-dimensional terrain to a renderer (FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

- a local memory, which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer (texture memory 226, FIG.2);
- a communication link, through which the memory receives the data blocks from a remote server (arrow between bus 201 and geometry engine 222, FIG.2); and
- a processor which receives one or more specified coordinates along with indication of a respective resolution level from the renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from the local memory, and downloads over the communication link one or more additional data blocks which include data corresponding to the one or more coordinates if the first block is not from the indicated level (computer graphics display system 200, FIG.2).

11. Therefore, in view of the foregoing, the examiner concludes that the above claims have been anticipated by Migdal '783.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 3-4, 10, 33-34 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of *In re Gazda*, 104 USPQ 400 ("*Gazda*").

14. With respect to claims 3 and 33, Migdal '783 does not disclose downloading a block at a resolution level higher than the resolution level of the first block; nor does it disclose claims 4 and 34, downloading the blocks from a succession of resolution levels, from the level immediately higher than the resolution level of the first block up to the maximal existent resolution level on the server not above the indicated resolution level; nor does it disclose claim 10, downloading first the block for which the coordinates were provided last. Instead, consistent with applicants' claim 2, Migdal '783 provides the data block with the highest resolution first. But *Gazda* stands for the idea that it is obvious to reverse the order of the elements.

15. *Gazda* involved a clock wound by turning the steering wheel of a car (104 USPQ at 400). The applicant's clock featured a pawl-and-ratchet mechanism (104 USPQ at 401). The way the applicant's invention worked was that turning the steering wheel moved the ratchet wheel of the clock relative to the pawl to actuate a train of gears which wound the clock (104 USPQ at 401). The primary reference used to reject the applicant's claims featured an automobile clock that was

stationary relative to the car, being mounted on the stationary structure of the steering column (instead of movable with the wheel as in the applicant's device), and was wound through a gearing connection by turning the steering wheel in one direction only (104 USPQ at 401). A secondary reference was used to reject the pawl-and-ratchet element of the applicant's claim (104 USPQ at 401).

16. The CCPA reasoned that whether the clock was mounted on the steering wheel or the steering wheel post "was only a matter of choice amounting to a mere reversal of parts", and the CCPA further agreed with the examiner who argued that the location of the ratchet means at the input end of the winding connection instead of the output end was "merely a matter of choice and expediency" (104 USPQ at 402).

17. Applying the reasoning of *Gazda* to this application, downloading a block at a resolution level higher than the resolution level of the first block is a matter of choice amounting to a mere reversal of which block is downloaded first. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to make this change.

18. Therefore, in view of the foregoing, claims 3-4, 10, 33-34 and 40 are rendered unpatentable by Migdal '783 and *Gazda*.

19. Claims 15, 18, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Migdal et al. ("Migdal '702," U.S. Pat. No. 5,886,702).

20. With respect to all of these claims, Migdal '783 does not disclose downloading the blocks

via the Internet. However, Migdal '702 discloses this element at col.10, ll.27-41.

21. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 to effect downloading over the Internet. Such a modification to Migdal '783 would increase flexibility by expanding the sources of images that describe the terrain of places to which pilots want to fly.

22. Accordingly, in view of the foregoing, claims 15, 18 and 45 are rendered unpatentable by Migdal '783 and Migdal '702.

23. Claims 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of O'Neill (U.S. Pat. No. 4,359,733).

24. With respect to these two claims, none of the previously cited prior art discloses relating coordinates or the data blocks to the predetermined course of a flight vehicle. However, O'Neill discloses claim 56 at col.56, ll.3-8 and claim 57 at col.56, ll. 12-25 (O'Neill discloses the "predetermined" course of aircraft in the sense that the aircraft about which the O'Neill invention collects data knows where it is going before the O'Neill satellite collects statistics on it).

25. Therefore, it would have been obvious to one of ordinary skill in the art to have combined O'Neill with Migdal '783 in order to store flight vehicle courses. Such a modification to O'Neill provides flight environment information for the stored O'Neill flight course information.

Response to Remarks

26. The applicant asserts that the examiner failed to show, in the last Office Action, the disclosure of downloading data blocks from a remote server in the prior art, as was disclosed in claims 1 and 31 of this application. Indeed, the examiner admits that the references cited in Migdal '783 in the last Office Action fail to show this claim limitation. However, this claim limitation is disclosed by Migdal '783 in col.6, ll.55-57.

27. As for the applicant's seeming implication that the holding of *Gazda* applies only to clocks attached to steering wheels of cars ("the holding of *Gazda* is far more restrictive, dealing with a specific structure," Amendment, p.4), such an argument virtually restricts the usefulness of court cases to determine obviousness to the specific case the court decides. This is clearly not the reality in the court systems of the United States, where lawyers and judges daily transcend facts of prior decided cases, as they were all taught to do in law school, in order to rely on the rationale behind past judicial decisions. Therefore, it is appropriate generally to apply judicial precedent in determining present and future questions of obviousness, and to apply *Gazda* in particular to the rejection of claims 3-4, 10, 33-34 and 40.

Action is Final, Necessitated by Amendment

28. The applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

29. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lance Sealey whose telephone number is (703) 305-0026. The examiner can normally be reached Monday-Friday from 7:00 am to 3:30 pm EST.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached on (703) 305-9798. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

32. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at (703) 306-0377.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

12/C
Hg
3/4/02

ATTORNEY DOCKET NO. SKY02 005 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of Yaron, et al.

Serial No.: 09/258,663 Art Unit: 2671

Filed: February 26, 1999 Examiner: L. Sealey

Title: REMOTE LANDSCAPE DISPLAY AND PILOT TRAINING

AMENDMENT

The Honorable Commissioner
of Patents and Trademarks
Washington, D.C. 20231

Sir:

Responsive to the Final Office Action dated November 27, 2001, please amend the subject application as follows

In the Claims:

Please cancel Claims 1, 2, 5, 6, 31, 32, 35 and 36, without prejudice.

Please amend claims: 3, 7, 8, 9, 11, 15, 33, 34, 37, 38, 39, 41, 45, 57 and 58.

3. (Amended) A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level;

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providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;

downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.

C1 Cont

3. ~~2.~~ (Amended) A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said plurality of coordinates being included in a plurality of respective distinct blocks;

C2 Cont

providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;

downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level, wherein blocks of lower resolution levels are downloaded before blocks of higher resolution levels.

4. ~~3.~~ (Amended) A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

C

receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said plurality of coordinates being included in a plurality of respective distinct blocks;

providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;

downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from the local memory is not at the indicated resolution level, wherein of lower resolution levels are downloaded before blocks of higher resolution levels and the block for which the coordinates were provided last among blocks at a common resolution level is downloaded first.

5. (Amended) A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

receiving from the renderer a plurality of coordinates in the terrain along with indication of a respective resolution level; said plurality of coordinates being included in a plurality of respective distinct blocks;

providing the renderer with first data block which includes data corresponding to at least some of the plurality of coordinates from a local memory;

downloading from a remote server one or more additional blocks which include data corresponding to a plurality of respective distinct blocks if the provided block from

the local memory is not at the indicated resolution level, wherein the blocks are downloaded according to the order in which the coordinates were provided.

7. (Amended) A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method comprising:

receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level;

providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;

downloading from a remoter server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level; and

downloading from a remote server excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer.

8. (Amended) A method according to claim 7, wherein downloading the data blocks comprised downloading the blocks via the Internet.

12. (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

a communication link, through which the memory receives the data blocks from a remote server;

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link one or more data blocks of a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the first block is not from the indicated level.

CH Cnt

13. ~~34.~~ (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

a communication link, through which the memory receives the data blocks from a remote server;

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks from the resolution level of the first block up to a maximal resolution level of blocks stored on the server that is not above the indicated resolution level which include data

43

C

corresponding to the one or more coordinates if the first block is not from the indicated level.

C4 Cont

14. (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

a communication link, through which the memory receives the data blocks from a remote server;

C5 Cont

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks of lower resolution levels before blocks of higher resolution levels which include data corresponding to the one or coordinates if the first block is not from the indicated level.

15. (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

C

a communication link, through which the memory receives the data blocks from a remote server;

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level, wherein the processor downloads blocks of lower resolution levels before blocks of higher resolution levels and the block for which the coordinates were provided last among blocks from a common resolution level is downloaded first.

C5 Cont

16. (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

a communication link, through which the memory receives the data blocks from a remote server;

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, and downloads over the communication link one or

45

C

C6 cont'd

more additional blocks according to the order in which the coordinates were provided which include data corresponding to the one or more coordinates if the first block is not from the indicated level.

41. (Amended) Apparatus for providing data blocks describing three-dimensional terrain to a render, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

C6

a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer;

a communication link, through which the memory receives the data blocks from a remote server;

a processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from a local memory, downloads over the communication link blocks which include data corresponding to the one or coordinates if the first block is not from the indicated level; and downloads excess blocks not currently needed by the renderer to fill up the local memory when the processor is not downloading blocks required by the renderer.

C7

45. (Amended) Apparatus according to claim 41 wherein the communication link comprises a connection to the internet.

C

23. 7
~~57.~~ (Amended) The method of Claim ~~11~~, wherein the coordinates relate to the coordinates of a predetermined course of a flight vehicle.

C8 24. 18
~~58.~~ (Amended) The apparatus of Claim ~~41~~, wherein said data blocks relate to a course of a flight vehicle.

REMARKS

All changes made by this amendment are shown in Exhibit A included herewith.

Applicant has amended allowable independent Claims 8, 11, 38 and 41 and placed them in condition for allowance. Claims depending from independent Claims 8, 11, 38 and 41 should be allowed therewith without consideration of the further patentable limitations respectively recited therein.

§ 102 Rejections:

Claims 1-2, 5-7, 9, 31-32, 35-37 and 39 stand rejected as being anticipated by Migdal et al. U.S. Patent No. 5,760,783 ("Migdal"). Claims 1, 2, 5, 6, 31, 32, 35 and 36 have been cancelled without prejudice. Claims 7, 9, 37 and 39 remain in the application. Reconsideration and withdrawal of the rejection is solicited.

Rejected independent Claims 7, 9, 37 and 39 are directed to the order in which required data blocks are downloaded from a remote server when the local memory does not have the requisite data block. For example, Claim 7 recites, *inter alia*, "downloading blocks of lower resolution levels before blocks of higher resolution levels." Claim 9 recites, *inter alia*, "downloading the blocks according to the order in which the coordinates were provided."

47 C

In rejecting these claims, the examiner cites Migdal column 16, lines 1-21. The relevance of the cited portion of Migdal is not understood, *i.e.*, Migdal discloses how the processor creates the initial data blocks (clip maps) from the larger terrain image (texture map) and the subsequent storage of those data blocks (clip maps) in local memory.

However, Migdal always provides the highest resolution tile first, *e.g.*, "a new texel row 601 located forward of the eyepoint is loaded from mass storage device 208 into the highest resolution tile 410 into texture memory." (col. 11, lines 14-16) Migdal does not disclose downloading blocks in the order in which their coordinates were provided, nor downloading blocks of lower resolution before those of higher resolution. Withdrawal of the rejection is solicited.

§ 103 Rejections:

Claims 3, 4, 10, 33, 34 and 40 stand rejected as obvious over Migdal in view of the holding stated in *In re Gazda*, 104 U.S.P.Q. 400 ("*Gazda*"). Reconsideration and withdrawal of the rejections is solicited.

It is important at the outset to appreciate that *Gazda* is 1955 decision of the CCPA under an earlier patent statute and long before the controlling decision in *John Deere*. To the extent inconsistent with John Deere, Gazda has been overruled. Assuming consistency, and ignoring the language differences, the Court in *Gazda* identified the differences between the claimed invention and the prior art and determined that those differences were obvious, i.e. the court held that the specific structure before it [i.e., the mounting of a clock alternatively on the steering wheel or on the steering wheel post] was

"a mere reversal of parts." (104 U.S.P.Q at 402). In other words, the Court applied the law of obviousness to the facts of that particular case and held that a "mere reversal of [the specific] parts" was obvious and hence not patentable. The Court did not hold, and could not have held, that all reversals of parts were obvious. The Court in Gazda did not hold that the present facts constitute a "reversal of parts" and certainly not that the reversal was a "mere" reversal.

Here, the differences are significant and not mere reversals. Claim 9, for example, requires that the order in which blocks are downloaded is a function of the order in which coordinates were provided, and Migdal makes no such disclosure. Claim 7, for example, requires that the order is from the lowest resolution to the highest resolution. Migdal expressly teaches away from this order, and no factual basis for the assumption that this important difference is obvious has been proffered by the examiner. "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). The examiner has not made the proper analysis and the rejection is thus improper.

Claims 15, 18 and 45 stand rejected as obvious over Migdal in view of Migdal et al. U.S. Patent No. 5,886,702 ("Migdal '702"). Claim 18 was cancelled without prejudice in Applicant's Amendment dated October 4, 2001. Claims 15 and 45 depend

respectively from allowable Claims 11 and 41 and should be allowed therewith without consideration of the additional patentable limitations respectively recited therein.

Claims 57 and 58 stand rejected as obvious over Migdal in view of O'Neill, but depend from allowed claims and should be allowed therewith without recourse to the additional and patentable limitations recited. For example, both Claims 57 and 58 require that the data blocks or coordinates of a terrain image relate to the course of a flight vehicle. The Examiner agrees that such limitation is not provided in any of the previously cited art. (Office Action, page 7), but asserts that the limitation is disclosed in O'Neill at column 56, lines 3-8 and lines 12-25. Since O'Neill teaches a system for determining the location of flight vehicles travelling above the earth, and since the coordinates of the flight path are known, the relevance of O'Neill to the claims is not understood. Saying it another way, the current application is not concerned with the coordinates of a vehicle, but how to portray the terrain image from different coordinates. Reconsideration and withdrawal of the rejections is accordingly solicited.

Respectfully submitted,

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